

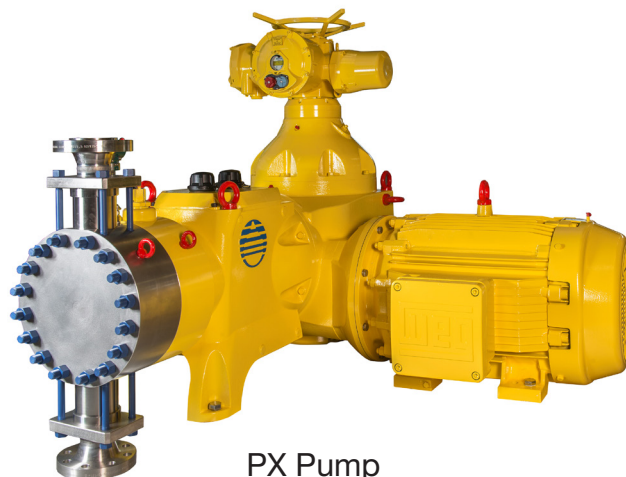
PRIMEROYAL® Series

API 675 Metering Pump

Model PX

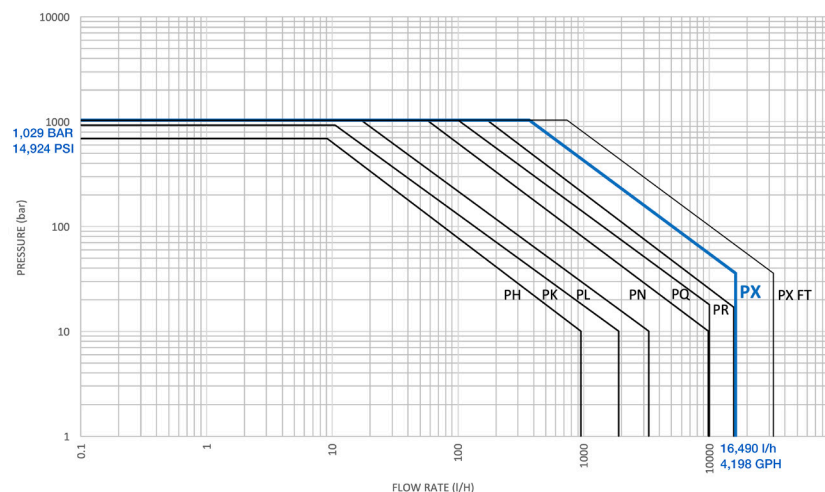
The PRIMEROYAL® metering pumps are versatile, reliable pumps that consistently and accurately inject chemicals. The pumps' field-proven design enables precise control of the pump delivery rate with a +/-1% steady state accuracy, over a range to 10 to 100% of the nominal flowrate, and repeatability. They feature a compact, variable eccentric drive that changes the stroke length by changing the position of the center of the shaft in the centric this API675-compliant pump has been designed to deliver maximum performance within a minimized footprint.

Model X provides accurate dosing of a broad spectrum of fluids at pressures up to 1 029 bar (14,924 psi) and a maximum flow rate of up to 16 490 l/h (4,198 GPH) per dosing head. Available in vertical or horizontal motor configurations and with ability to accommodate three types of liquid ends, PRIMEROYAL X can meet the specific performance requirements of numerous industrial applications.



PX Pump

PRIMEROYAL® Pump series - Simplex version



	50 Hz motor	60 Hz motor
Flow rate	Up to 16 490 l/h	Up to 4,198 GPH
Pressure	Up to 1 029 bar	Up to 14,924 PSI
Thrust	6 000 daN	13,488 lbf
100% stroke	120 mm	4.72 in
Ambient T° Standard	-10 to + 50 °C	+ 14 to + 122 °F
Low T° design	- 40 to +50 °C	- 40 to + 122 °F

Applications

• Oil and Gas:

- **Upstream:** injection of methanol, monoethylene glycol, corrosion inhibitors and many more to prevent hydrate formation, wax and scale deposits and corrosion in deep-water wells, polymer and CO2 injection in enhanced oil recovery (EOR) process
- **Midstream:** Injection of corrosion inhibitors for produced oil and gas integrity during transportation
- **Downstream:** Injection of chemicals for separation and treatment of refined products

• Chemical and Petrochemical Processing:

Dosing catalysts for polymerization of polyethylene

• Power Generation:

High-pressure boiler feed water treatment

• Refinery:

Pumping of hydrocarbons/condensate

• Water treatment in Oil and Gas:

Deep water disposal, hydrocarbon condensate transfer

• Carbon Capture and Storage (CCS):

CO2 injection

Benefits

- Compliant with **API675 standards**
- **Adaptability and accuracy:** capacity adjustable while running or stopped (stroke micrometric adjustment, 10 turns only from 0 to 100%)
- **Space constraints:** Available in vertical or horizontal motor configurations
- **Suitable for the majority of fluids and a large number of industrial processes:** several stroke speeds for an accurate dosing
- **Modular design to precisely fit your needs:** more than four designs of liquid ends, specific check valves, adaptable connection types, control.
- **Multiplexing capability:** to reduce pulsations, meet a specific flow rate by reducing the number of parts, the power consumption and the footprint or to inject several products
- **Long life:** ensured by a robust and proven construction, oil bath lubrication to ensure reliability during continuous operation, using the best materials
- **Safety:** diaphragm liquid ends guaranteed leak-proof with service life in excess of 20 000 hours
- **Operations even in the most extreme conditions:** specific configurations to operate in saline/offshore conditions, desert, low temperature environment
- **Global design:** can comply with the main worldwide certifications and systems: EN, ATEX, IECEx, PED, NACE, SASO, Customs Union, etc
- **Over-pressure protection:** integrated safety valve to protect the pump on diaphragm liquid ends
- **Maintenance easy and fast:** the patented MARS system (Mechanically Actuated Refill System) avoid the need to delicately adjust the refill valve

Technical features

- Liquid end body in 316L S.S., 17-4P-H, Duplex. Other materials like Alloy 20, Hastelloy, super Duplex available upon request
- PTFE diaphragm design (H7 type) for High Pressure, up to 517 bar (7,500 psi) discharge pressure and 70 bar (1,075 psi) suction pressure
- PTFE diaphragm (H5 type) up to 252 bar (3,656 psi)
- Stainless steel 316L diaphragm for High Pressure, up to 1 029 bar (14,924 psi)
- Packed plunger in Z55CDV17 steel or chromium oxide coated
- 6 stroke speeds/gear ratios available with 50 Hz-motor: 39, 59, 100, 120, 144 and 180 spm
- 5 stroke speeds/gear ratios available with 60 Hz-motor: 47, 71, 120, 144 and 173 spm
- Manual or electrical stroke length adjustment
- IEC or NEMA mounting, motor for frequency variation
- Electric equipment for non-hazardous or hazardous area, large variety of protections and insulations
- Conforms to ATEX II 2G Ex h II C T3 Gbx with ATEX motors
- Optimum protection for critical processes or pumped fluids: double diaphragm, diaphragm failure detection, temperature probes
- Special valves for any type of fluid
- Remote head, Cooling/heating jacket for handle processing requiring low/extreme fluid temperatures
- Full set of connections: NPT thread, Medium Pressure - MP type connection, flange (ANSI, DIN, ISO)
- Wide range of accessories available to complete your dosing installation

Design Specifications

According to your process, we advise you on the best design of liquid ends to meet your specific requirements. The following charts demonstrate the minimum and maximum flow rate and pressure of the pump for a single head on a basic configuration. To obtain the flow rate for multiplex head, multiply the flow rate by the number of heads. For other applications, please consult us.

Standard connections are depending on the plunger diameter; a full set of connections are available upon request. Please consult us for details.

PTFE diaphragm liquid ends

- Widest chemical compatibility
- 100% leakage-free
- High operational safety: integrated relief valve
- Cost effective solution in the entire product cycle life
- Liquid End Type H7 - High Pressure
- Liquid End type H5 (HX) Medium Pressure
- The MARS system offers a number of advantages over traditional refill systems in hydraulically actuated diaphragm liquid ends: easy start-up without need to adjust the refill valve, a delicate procedure
- Higher pressure capabilities
- High hydraulic efficiency

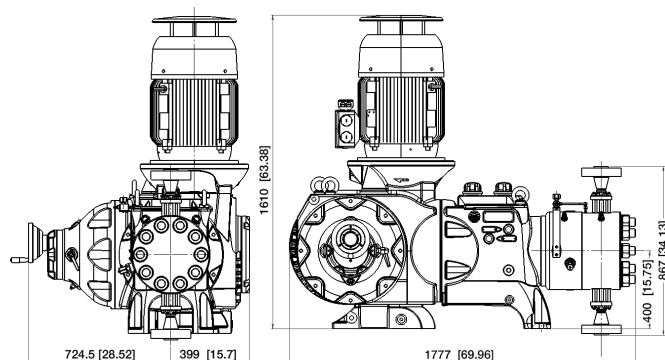
		50 Hz Motor					60 Hz Motor					Connections
Plunger diameter code	Swept volume	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	
				10 bar	P.max				145 psi	P.max		
Ø	cm³	spm	rpm	l/h		bar	spm	rpm	GPH		psi	
PTFE diaphragm, type H7 - High Pressure												
38	136.1	175	1440	1357	944	517	175	1728	359	250	7498	1" 13/16 - W3
40	150.8	175	1440	1504	1082	477	175	1728	398	286	6918	1" 13/16 - W3
42	166.3	175	1440	1658	1237	433	175	1728	438	327	6280	1" 13/16 - W3
45	190.9	175	1440	1903	1484	377	175	1728	503	392	5468	Suction: 1" 1/2 V3 Discharge: 1" V3
50	235.6	175	1440	2350	1934	305	175	1728	621	511	4423	1" 1/2 W3
PTFE diaphragm, type H5 (HX)												
55	285.1	146	1440	2372	1912	252	140	1728	603	486	3654	2" - W2 m
60	339.3	146	1440	2823	2367	212	140	1728	717	601	3074	2" - W2 m
63	374.1	146	1440	3113	2659	192	140	1728	791	675	2784	2" - W2 m
65	398.2	146	1440	3313	2861	180	140	1728	842	727	2622	2" - W2 m
70	461.8	146	1440	3843	3397	155	140	1728	976	863	2248	2" - W2 m
75	530.1	146	1440	4411	3969	135	140	1728	1121	1008	1958	2" - W2 m
80	603.2	146	1440	5019	4581	119	140	1728	1275	1164	1725	3" - W3
85	680.9	146	1440	5666	5236	105	140	1728	1440	1330	1522	3" - W3
90	763.4	146	1440	6353	5926	94	140	1728	1614	1505	1363	3" - W3
95	850.6	146	1440	7078	6659	84	140	1728	1798	1692	1218	3" - W3
100	942.5	146	1440	7843	7428	76	140	1728	1992	1887	1102	3" - W3
105	1039.1	146	1440	8647	8238	69	140	1728	2197	2093	1000	3" - W3
110	1140.4	146	1440	9490	9087	63	140	1728	2411	2308	913	4"
115	1246.4	146	1440	10372	9982	57	140	1728	2635	2536	826	4"
120	1357.2	146	1440	11294	10906	53	140	1728	2869	2770	768	4"
125	1472.6	146	1440	12255	11882	48	140	1728	3113	3018	696	4"
130	1592.8	146	1440	13255	12884	45	140	1728	3367	3273	652	4"
135	1717.7	146	1440	14294	13940	41	140	1728	3631	3541	594	4"
140	1847.3	146	1440	15372	15016	39	140	1728	3905	3815	565	4"
145	1981.6	146	1440	16490	16147	36	140	1728	4189	4102	522	4"

Dimensions, Weight and Packing

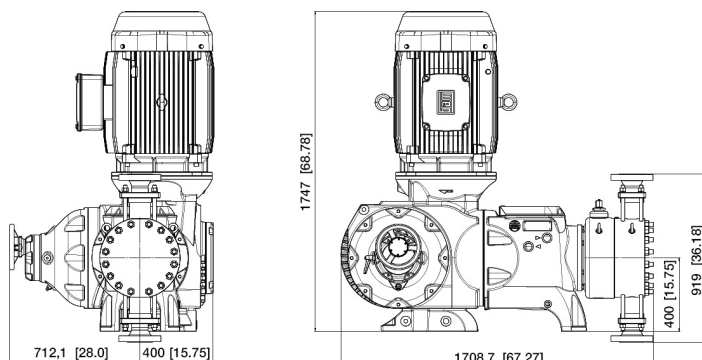
The general dimensions are given as an indication only.

The dimensions given correspond to the maximum dimensions (largest liquid ends, most powerful motor)

H7 Liquid End - Simplex Configuration



H5 (HX) Liquid End - Simplex Configuration



Version	Net weight(*)		Gross weight (*)		Packing	
	kg	lbs	kg	lbs	(L x W x H) mm	(L x W x H) in
Simplex - H7 and H5 liquid ends	1570	3,462	1870	4,123	1950 x 1320 x 2050	76.7 x 52 x 80.7

(*) Approximately

Packed plunger liquid end

- High pressure capabilities
- Lowest NPSH requirements
- Ideal for viscous fluids and slurries
- Long term success, reliability, and efficiency

TYPE NX

- High and extreme pressure capability
- High hydraulic efficiency
- Contained leakage concept reduces monitoring & maintenance

		50 Hz Motor					60 Hz Motor					
Plunger diameter code	Swept volume	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Connections
				10 bar	P.max				145 psi	P.max		
Ø	cm³	spm	rpm	L/h		bar	spm	rpm	GPH		psi	
Packed plunger, type P4 (NX)												
28	73.9	146	1440	621	440	980	140	1728	158	112	14132	
32	96.5	146	1440	812	632	750	140	1728	206	160	10820	1" MP
36	122.2	146	1440	1027	848	590	140	1728	261	216	8549	1" MP
40	150.8	146	1440	1268	1089	480	140	1728	322	277	6925	1" MP

Dimensions, Weight and Packing

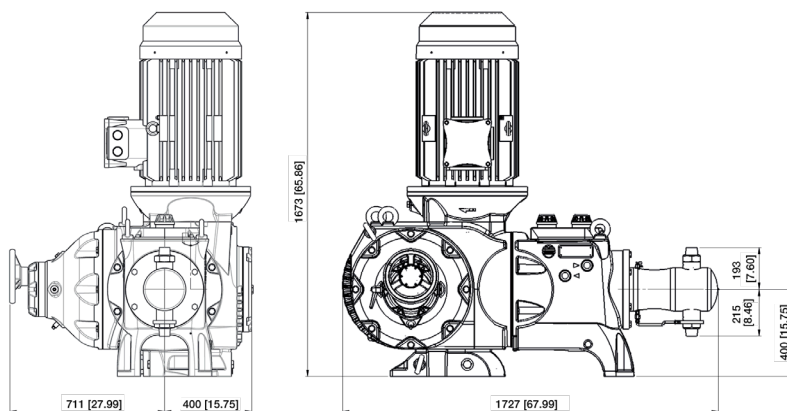
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P4 (NX) LIQUID END

Simplex Configuration

Version	Net weight(*)		Gross weight(*)		Packing	
	kg	lbs	kg	lbs	(L x W x H) mm	(L x W x H) in
Simplex - P4 (NX) liquid end	1270	2,800	1600	3,528	1950 x 1320 x 2100	76.7 x 52 x 82.7

(*) Approximately



Metallic diaphragm liquid end

- “Metal to Metal” sealing design assures leak free operation
- Challenging products dosing: diffusing, radioactive or abrasive liquids
- High pumped liquid temperatures
- High operation safety: integrated relief valve

		50 Hz Motor					60 Hz Motor					
Plunger diameter code	Swept volume	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Connections
				10 bar	P.max				145 psi	P.max		
Ø	cm³	spm	rpm	L/h		bar	spm	rpm	GPH		psi	
Metallic diaphragm - M2 type (MX)												
25	58.9	175	1440	569	350	1029	175	1728	150	92	14924	VV 7
30	84.8	175	1440	819	603	729	175	1728	217	159	10573	VV 7
31	90.6	175	1440	874	670	694	175	1728	231	178	10065	VV 7
33	102.6	175	1440	991	725	597	175	1728	262	192	8658	VV 7
35	115.5	175	1440	1115	855	544	175	1728	295	225	7890	VV 7
38	136.1	175	1440	1314	1050	457	175	1728	347	276	6628	VV2 f
42	166.3	175	1440	1606	1354	386	175	1728	424	358	5598	VV2 f
47	208.2	175	1440	2011	1748	302	175	1728	532	462	4380	VV2 f

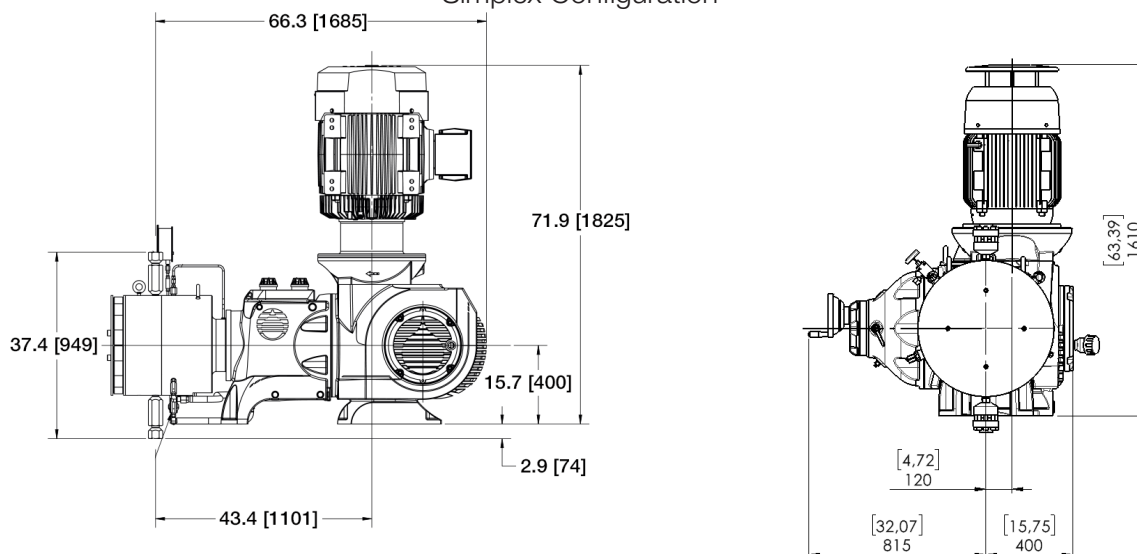
Dimensions, Weight and Packing

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The dimensions given correspond to the maximum dimensions (largest liquid ends, most powerful motor)

M2 (MX) LIQUID END

Simplex Configuration

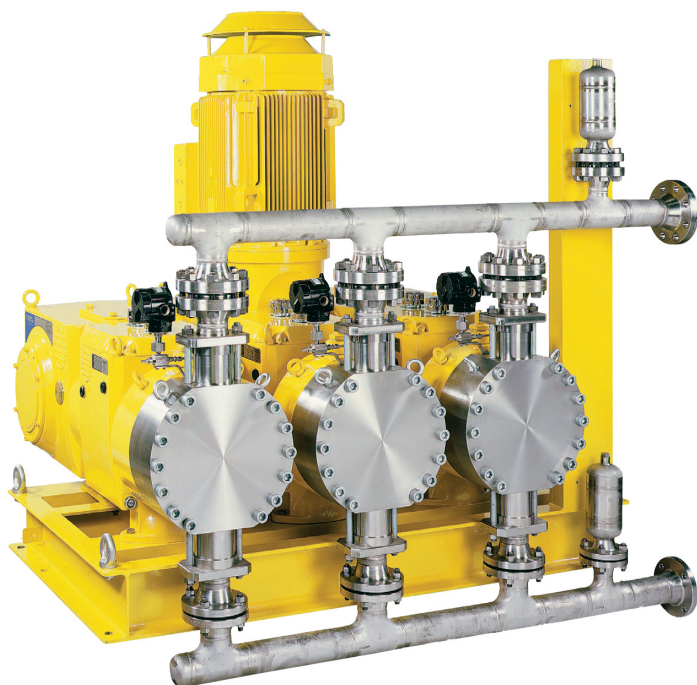


Version	Net weight(*)		Gross weight(*)		Packing	
	kg	lbs	kg	lbs	(L x W x H) mm	(L x W x H) in
Simplex - M2 (MX) liquid end	1690	3,726	2080	4,586	2180 x 1320 x 2250	85.8 x 52 x 88.6

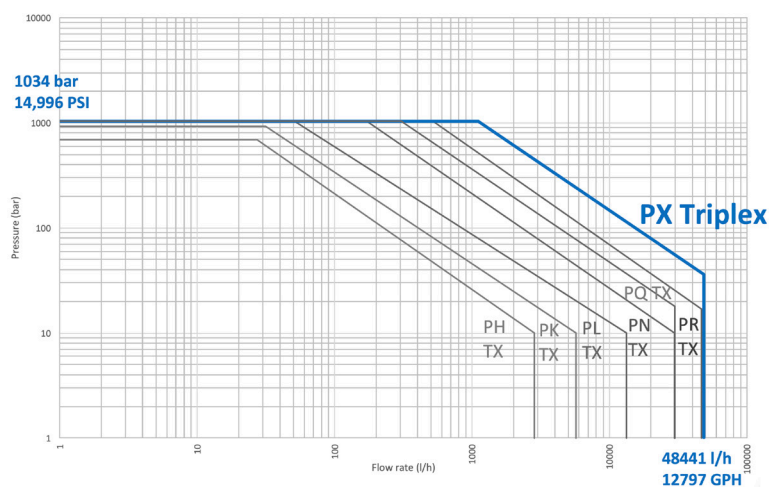
(*) Approximately

Example of Multiplex

TRIPLEX PUMP VERTICAL MOTOR CONFIGURATION



Triplex PRIMEROYAL® Pumps



Milton Roy and its trusted partners:

- Guide you in selecting the turnkey solution that best suits your needs
- Advise you on the optimum installation of your equipment
- Propose a wide range of accessories to complete the installation of your pump
- Advise you on the essential wear parts to be kept on hand in order to optimize the performance of your equipment
- Can provide turnkey dosing solutions, from a skid-mounted pump to a complex, 100% customized chemical injection package

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